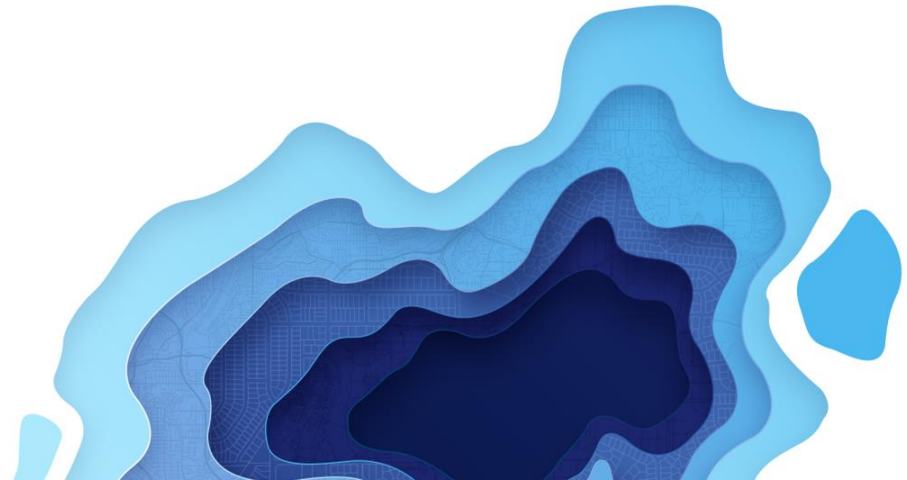
UC
ENVISIONING CENTER

Putting New Technology to Work for You

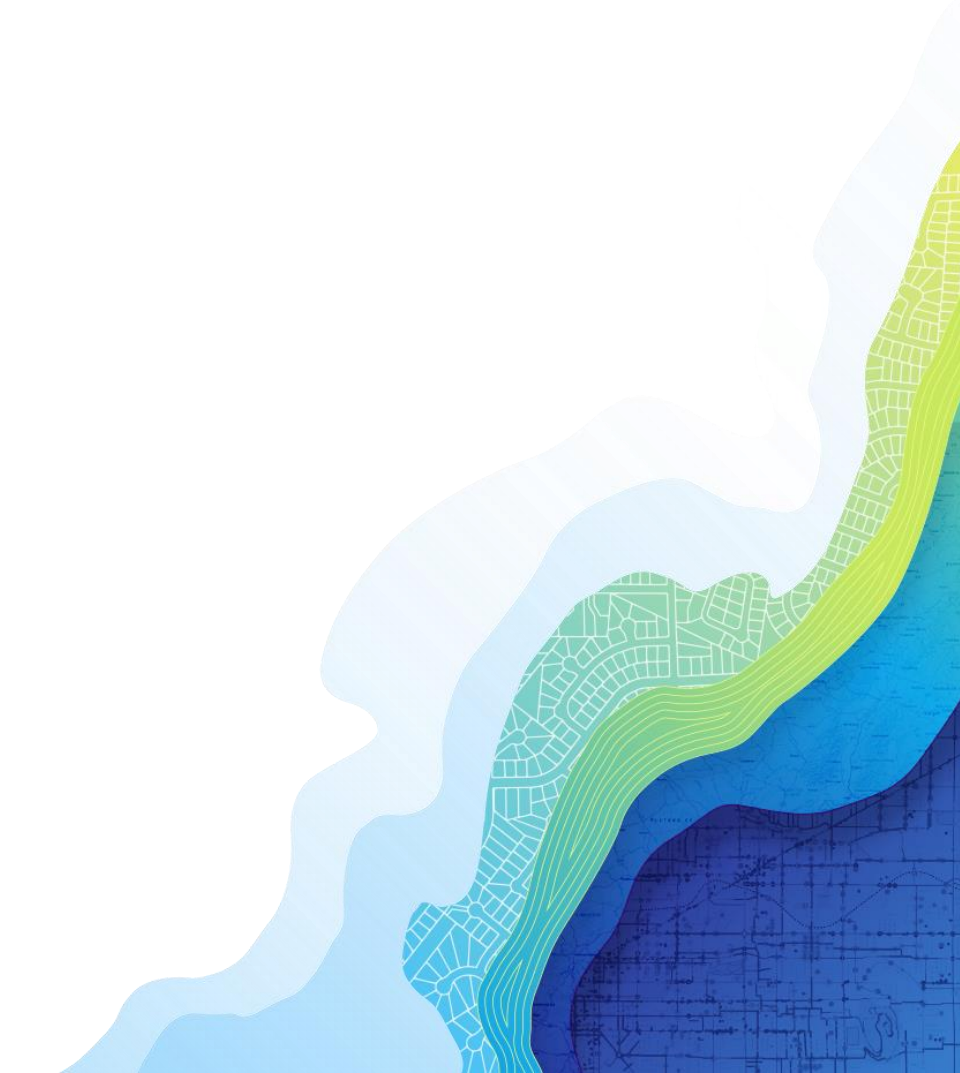
David Totman, Industry Manager – Global Water Practice
Christa Campbell, Industry Specialist – Global Water Practice
Andrew Hargreaves, Solutions Engineer – Global Water Practice



Putting New Technology to Work for You

aka, David wants a digital twin…

- **David Totman**, General Manager of Mercator Water
- **Christa Campbell**, Geographic Information Officer
- **Andrew Hargreaves**, Strategic Business Analyst



MERCATOR WATER

380 New York Street
Redlands, CA 92373
(909) 793-2853

Utility Board Meeting

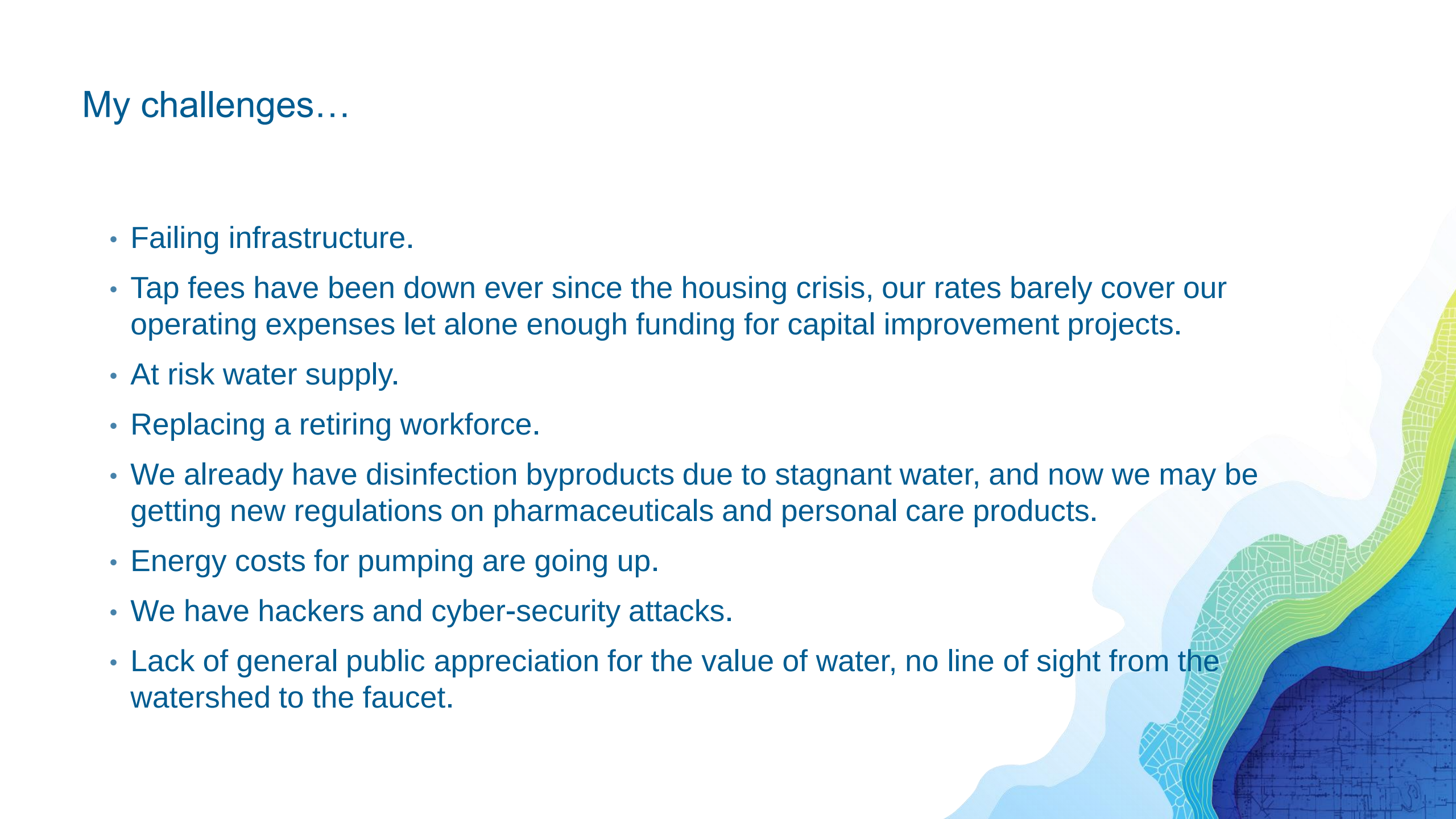
Tuesday, October 10, 2017 | 09:00 AM | Esri Auditorium

AGENDA ITEMS:

1. **7% Water Rate Increase**

My challenges…

- Failing infrastructure.
- Tap fees have been down ever since the housing crisis, our rates barely cover our operating expenses let alone enough funding for capital improvement projects.
- At risk water supply.
- Replacing a retiring workforce.
- We already have disinfection byproducts due to stagnant water, and now we may be getting new regulations on pharmaceuticals and personal care products.
- Energy costs for pumping are going up.
- We have hackers and cyber-security attacks.
- Lack of general public appreciation for the value of water, no line of sight from the watershed to the faucet.



ArcGIS

An Integrated
Web GIS Platform

Providing mapping, analysis, data management, and collaboration

The Power of Geography

ArcGIS Connects People, Processes, and Data

Improving Efficiency, Collaboration and Communication

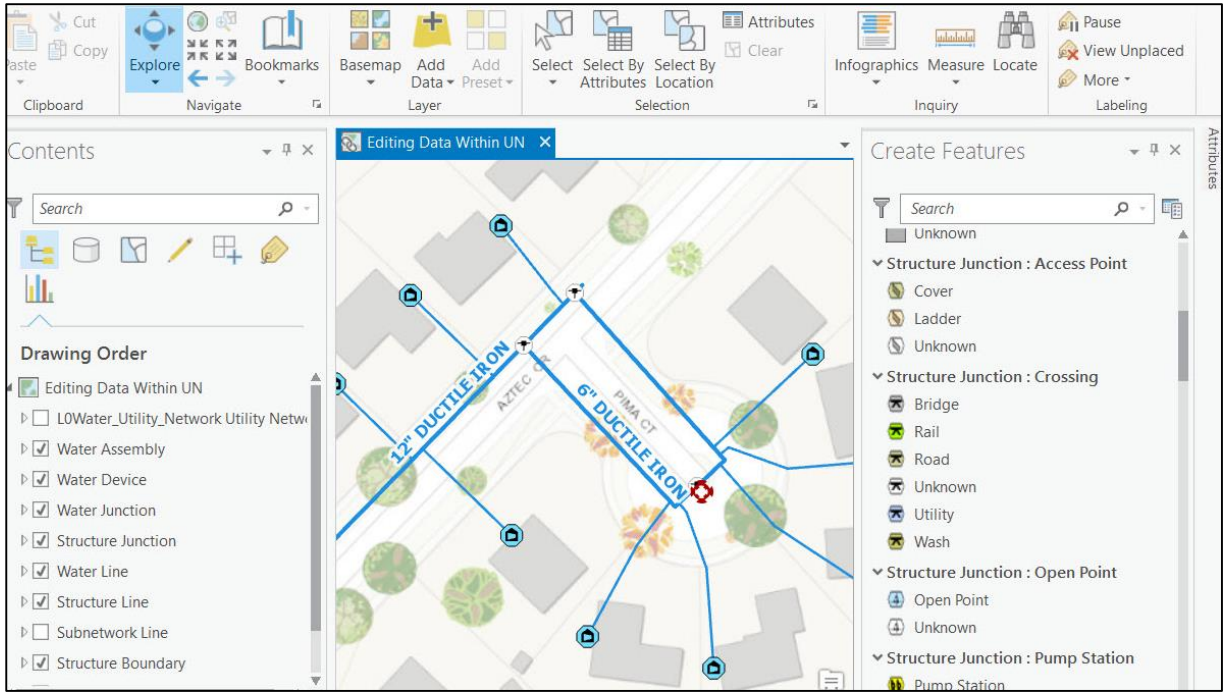
System of Engagement

System of Record

System of Insight

Supports Multiple Types of Systems

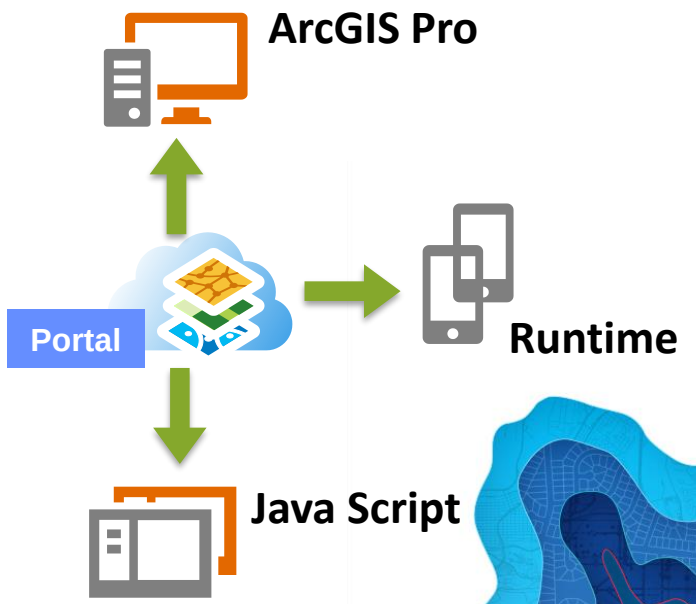
ArcGIS enables every employee and contractor to easily discover, use, make, and share maps from any device, anywhere, anytime.



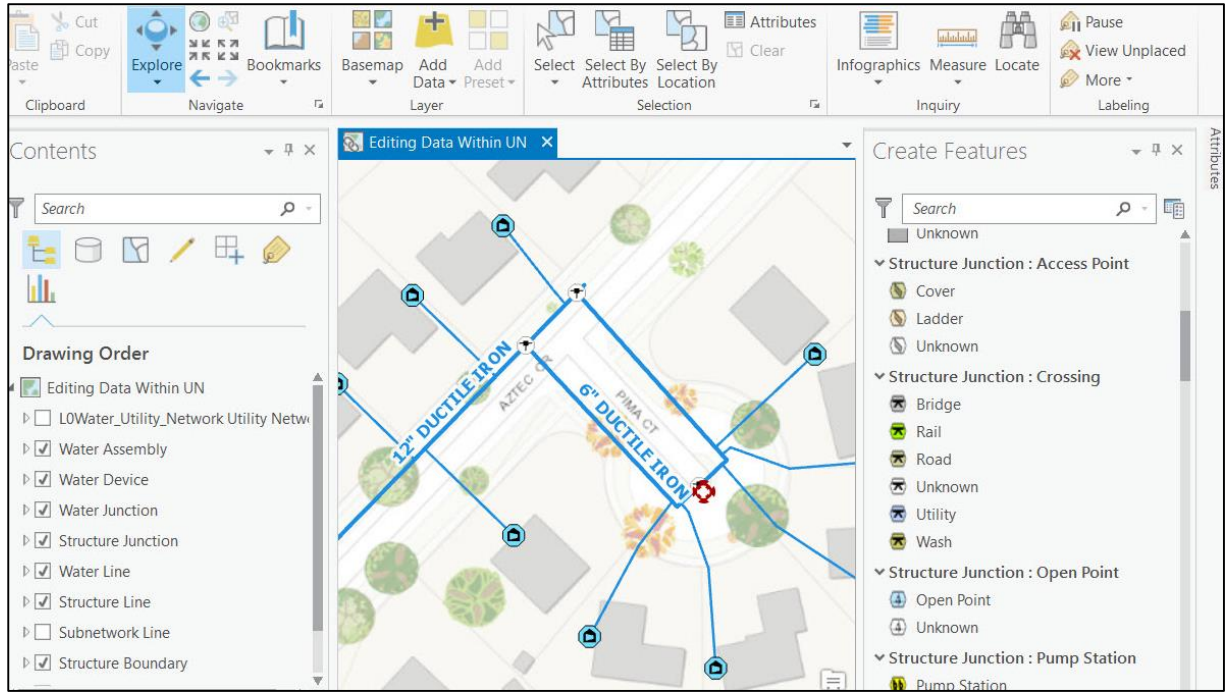
Introducing The Utility Network

The Utility Network

- Esri's new method to model Network Data
- Services based architecture provides the ability to ***model, edit,*** and ***analyze*** complex networks across the *entire* Esri platform
- Rules enforce modeling concepts to better support *true* representations of assets in greater detail allowing for greater analysis
- Easy exchange of network information with other mission critical systems like Hydraulic Modelling
- Simplified data models provides increased performance and a highly responsive editing and analysis environment

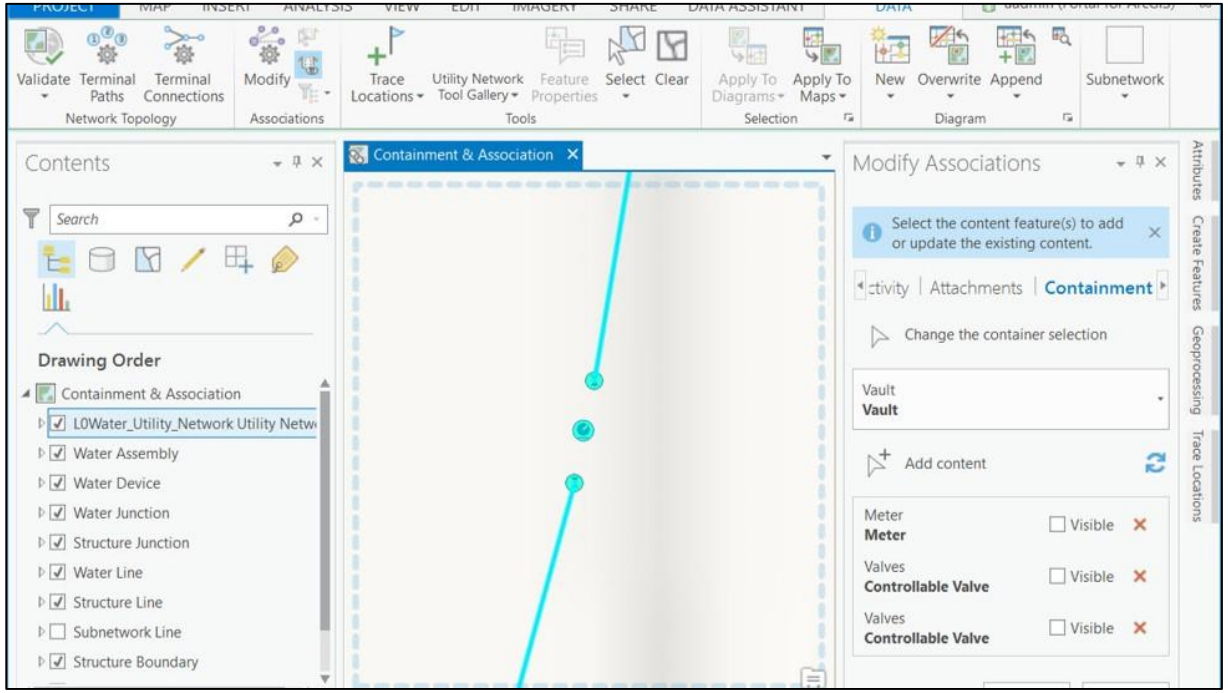


System of Record:



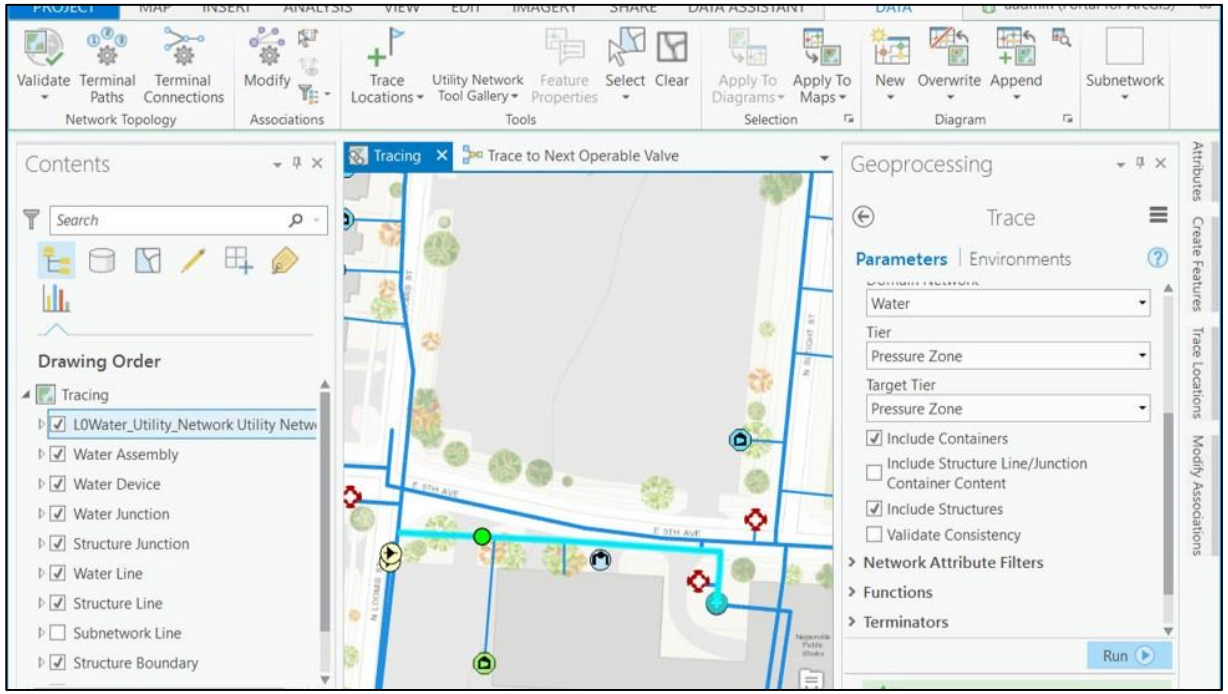
Editing the Utility Network

System of Record:



Containment & Association

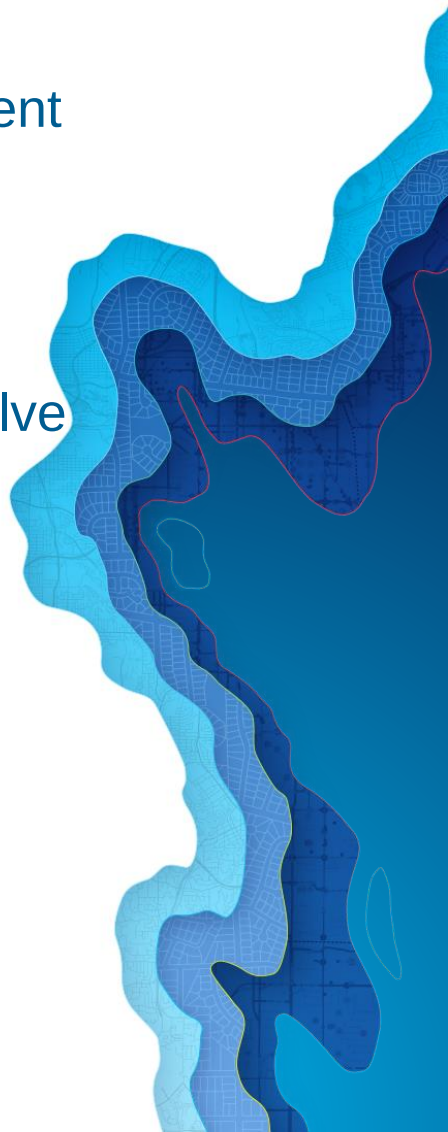
System of Insight:



Tracing the Utility Network

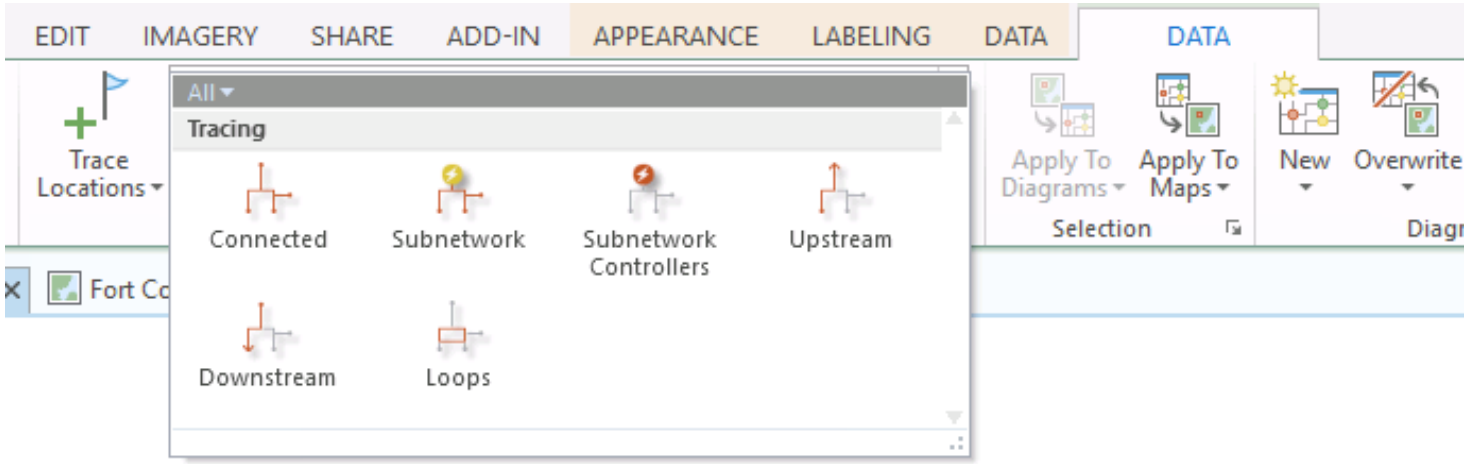
Tracing the utility network

- Tracing uses network data to answers questions and solves problems about the current state of the network:
  - Emergencies: What valves need to be closed to isolate flow to this location?
  - Future design: Can the existing equipment handle more capacity at this point?
  - Workflows: Crews need different answers depending upon Hydrant Flushing vs Valve Exercising?

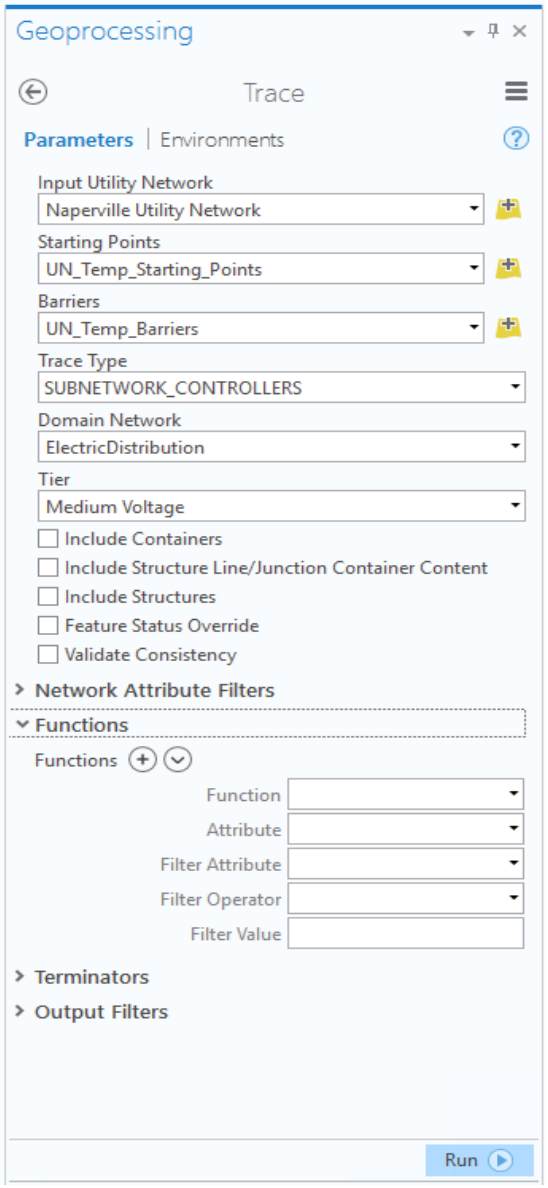


Tracing the utility network

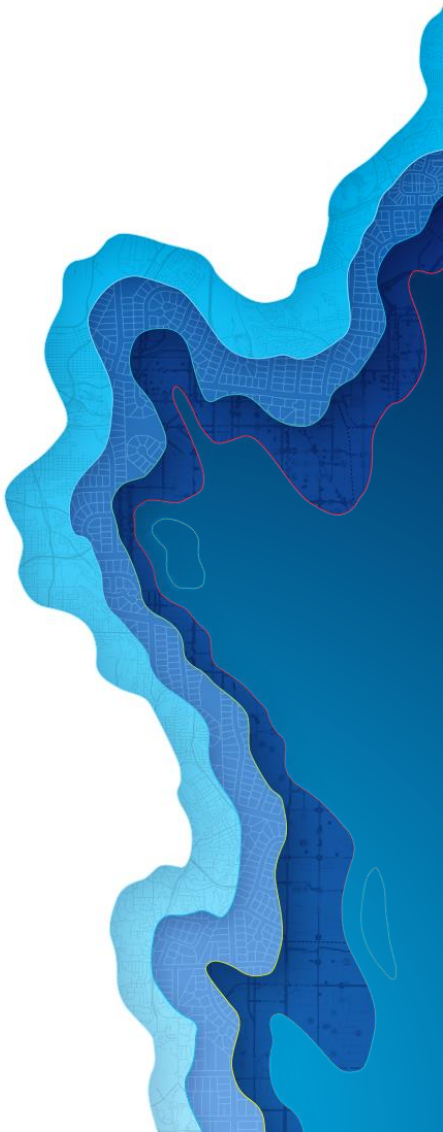
- Core Trace Types:
  - Connected
  - Subnetwork
  - Subnetwork Controllers
  - Upstream
  - Downstream
  - Loops



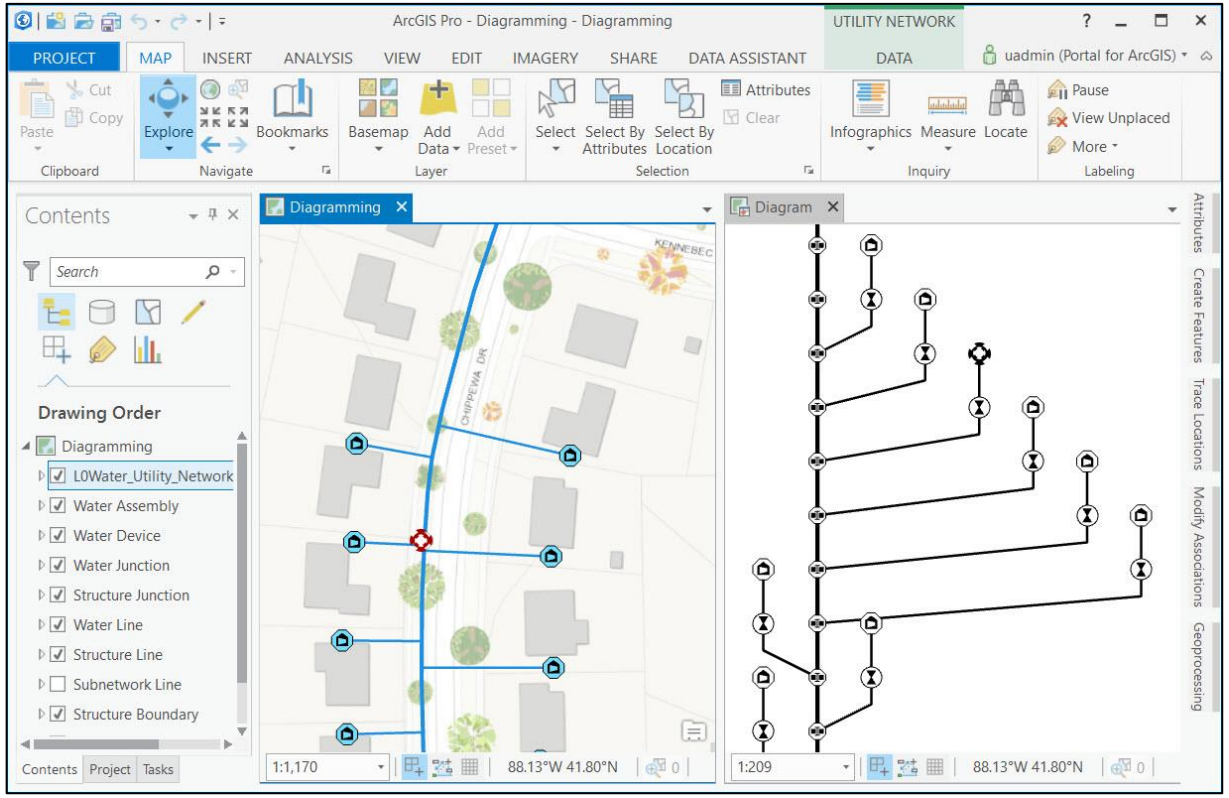
Tracing the utility network



- *Could* have taken a more traditional approach, eg:
  - Provide workflow specific utility traces in the first release
  - Slowly add to that list over time
  - Requires customers/partners to write their own for unique circumstances



System of Engagement:



Network Diagrams

esri
THE
SCIENCE
OF
WHERE